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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
CHAU, COREY P	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/043,591	VICKERS ET AL.	
	Examiner	Art Unit	
	Corey P. Chau	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 1 and 4-13 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5404315 to Nakano et al. (hereafter as Nakano).

3. Regarding Claim 1, Nakano discloses a method of adjusting the dynamics of an audio track, comprising:

deriving, from the audio track, a set of metadata describing a statistical distribution of levels encountered in the audio track (column 2, line 57 to column 3, line 4; column 3, lines 23-30);

deriving, from the metadata, a time-varying gain that varies with time within the audio track to modify the statistical distribution of levels (Figs. 1, 7-10; column 7, line 61 to column 8, line 2); and

applying the time-varying gain to the audio track to obtain a resulting audio track (Figs. 1, 7-10; column 8, lines 3-6).

4. Regarding Claim 4, Nakano discloses deriving the time varying gain comprises:

deriving, from histogram data of levels encountered in the audio track, an original dynamic spread value representing a spread of the levels encountered in the audio track (column 7, lines 42-51);

performing a comparison between the original dynamic spread value and a desired dynamic spread value (column 10, lines 41-59); and

deriving parameters for the derivation of the time-varying gain from the comparison (column 10, lines 41-59).

5. Regarding Claim 5, Nakano discloses deriving parameters comprises:

determining a slope of a segment of a compressor transfer function (column 6, line 5 to column 7, line 37).

6. Regarding Claim 6, Nakano discloses determining the slope comprises:

applying a test compression scheme to the histogram data to obtain test histogram data, the test compression scheme including a test slope (Figs. 1, 7-10; column 7, lines 42-51);

determining a test dynamic spread value from the test histogram data (column 7, line 42 to column 8, line 60); and

deriving the slope based on a comparison of the original dynamic spread value, the desired dynamic spread value and the test dynamic spread value (column 6, lines 5-27).

7. Regarding Claim 7, Nakano discloses the slope for the compressor transfer function is determined using interpolation (column 6, line 5-27).

8. Regarding Claim 8, Nakano discloses the slope for the compressor transfer function is determined using iteration (column 7, line 42 to column 8, line 60).

9. Regarding Claim 9, Nakano discloses the original dynamic spread value is derived from a mean absolute deviation from a mean loudness value for the audio track (column 4, line 57 to column 5, line 3).

10. Regarding Claim 10, Nakano discloses the original dynamic spread value is derived from a mean absolute deviation from a median loudness value for the audio track (column 4, line 57 to column 5, line 3).

11. Regarding Claim 11, Nakano discloses the parameters include a level of a threshold separating two segments of a compressor transfer function (Figs. 1, 7-10; column 10, lines 41-59).

12. Regarding Claim 12, Nakano discloses specifying a fraction representing a proportion of the audio track to which compression will be applied (column 6, lines 5-27); deriving from the histogram data a loudness value corresponding to a point above or below which the fraction of the histogram data is located; and using the loudness value as a threshold separating two segments of a compressor transfer function (Figs. 1, 7-10; column 7, line 42 to column 8, line 60; column 10, lines 41-59).

13. Regarding Claim 13, Nakano discloses deriving a test overall loudness value from the test histogram data; deriving a fixed post-gain value from the test overall loudness value and from a desired loudness value; and applying the time varying gain and the fixed post-gain value to the audio track (Figs. 1, 7-10; column 6, lines 5-27; column 7, line 42 to column 8, line 60).

14. Claims 1-3, 14-16, and 18-21 and rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6351733 to Saunders et al. (hereafter as Saunders).

15. Regarding Claim 1, Saunders discloses a method of adjusting the dynamics of an audio track, comprising:

deriving, from the audio track, a set of metadata describing a statistical distribution of levels encountered in the audio track (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34);

deriving, from the metadata, a time-varying gain that varies with time within the audio track to modify the statistical distribution of levels (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 57-67); and

applying the time-varying gain to the audio track to obtain a resulting audio track (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67).

16. Regarding Claim 2, Saunders discloses deriving the time varying gain comprises:

specifying a desired statistical dynamics distribution (Figs. 1 and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 57-67; column 22, lines 53-60);

deriving a transfer function from the metadata and from the desired statistical dynamics distribution (Figs. 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67; column 22, lines 53-60); and

deriving the time-varying gain from the transfer function such that a final statistical dynamics distribution encountered in the resulting audio track is substantially similar to the desired statistical dynamics distribution (Figs. 1 and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67).

17. Regarding Claim 3, Saunders discloses deriving the time varying gain comprises:

specifying a desired overall loudness for the audio track (Figs. 1 and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 57-67; column 22, lines 53-67)

deriving an estimate of the loudness of the resulting audio track from the metadata and from an initial estimate of the time-varying gain (Figs. 1 and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 57-67; column 22, lines 53-67);

deriving a correction factor from the desired overall loudness and from the estimate of the loudness of the resulting audio track (Figs. 1 and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 57-67; column 22, lines 53-67; column 23, line 48 to column 24, line 6); and

applying the correction factor to the initial estimate of the time-varying gain to obtain the time-varying gain (Figs. 1 and 13-14; column 17, line 16 to column 18, line

34; column 23, lines 57-67; column 22, lines 53-67; column 23, line 48 to column 24, line 6; column 26, line 40 to column 27, line 4).

18. Regarding Claim 14, Saunders discloses a method of adjusting the loudness of an audio track including a plurality of audio frames, the method comprising:

obtaining loudness values for each of the plurality of audio frames (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34);

applying a weighting factor to each of the loudness values to obtain a plurality of weighted loudness values (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34);

aggregating the weighted loudness values to obtained an overall loudness value for the audio track (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67);

comparing the overall loudness value to a desired loudness value (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67; column 22, lines 53-60; column 26, line 40 to column 4); and

applying a gain to the audio track based on the comparison between the overall loudness value and the desired loudness value (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67; column 22, lines 53-60; column 26, line 40 to column 4).

19. Regarding Claim 15, Saunders discloses the weighting factor to be applied to a particular loudness value is derived from the particular loudness value itself (Figs. 1, 5,

and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67; column 22, lines 53-60; column 26, line 40 to column 4).

20. Regarding Claim 16, Saunders discloses the weighting factor for a particular loudness value comprises an emphasis parameter raised to a power of the particular loudness value (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34; column 23, lines 48-67; column 22, lines 53-60; column 26, line 40 to column 4).

21. Regarding Claim 18, Saunders discloses a method of altering a dynamic range of an audio track comprising a plurality of audio frames each having a loudness value, the method comprising:

obtaining original statistical frequency data for the audio track (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34);

applying a test compression scheme to the original statistical frequency data to obtain test statistical frequency data (Figs. 1, 2A-2B, 3, 5, and 13-14; column 17, line 16 to column 18, line 34);

deriving from the original statistical frequency data and the test statistical frequency data an actual compression scheme (Figs. 1, 2A-2B, 3, 5, and 13-14; column 17, line 16 to column 18, line 34); and

compressing the audio track using the actual compression scheme (Figs. 1, 2A-2B, 3, 5, and 13-14; column 17, line 16 to column 18, line 34).

22. Regarding Claim 19, Saunders discloses obtaining a mean loudness deviation value from the loudness values for the plurality of audio frames; determining a test mean loudness deviation value from the test statistical frequency data; and comparing

the mean loudness deviation value and the test mean loudness deviation value with a desired mean loudness deviation value when deriving the actual compression scheme (Figs. 1, 2A-2B, 3, 5, and 13-14; column 17, line 16 to column 18, line 34).

23. Regarding Claim 20, Saunders discloses a method of processing an audio track comprising:

obtaining statistical frequency data for the audio track (Figs. 1, 5, and 13-14; column 17, line 16 to column 18, line 34);

applying a compression scheme to the statistical frequency data to obtain an estimate of statistical frequency data that would result from applying the compression scheme directly to the audio track (Figs. 1, 2A-2B, 3, 5, and 13-14; column 8, line 7 to column 9, line 51; column 17, line 16 to column 18, line 34);

determining an estimated overall compressed loudness value from the estimate of statistical frequency data (Figs. 1, 2A-2B, 3, 5, and 13-14; column 17, line 16 to column 18, line 34);

compressing the audio track using the compression scheme to obtain a compressed audio track (Figs. 1, 2A-2B, 3, 5, and 13-14; column 17, line 16 to column 18, line 34); and

applying a gain to the compressed audio track based on a comparison between the estimated overall compressed loudness value and a desired loudness value (Figs. 1, 2A-2B, 3, 5, and 13-14; column 17, line 16 to column 18, line 34).

24. Regarding Claim 21, Saunders discloses the overall compressed loudness value is obtained by: obtaining a plurality of individual loudness values from the estimate of

statistical frequency data; applying a weighting factor to each of the individual loudness values to obtain weighted loudness values; and aggregating the weighted loudness values to obtained the overall compressed loudness value for the audio track (Figs. 1, 2A-2B, 3, 5, and 13-14; column 8, line 7 to column 9, line 51; column 17, line 16 to column 18, line 34; column 23, lines 48-67; column 22, lines 53-60; column 26, line 40 to column 4).

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6351733 to Saunders.

27. Regarding Claim 17, Saunders discloses a metadata which is the audio control information, but does not expressly disclose the weighted loudness values of the plurality of audio frames are aggregated using a histogram (column 7, line 42 to column 8, line 60). However, the examiner takes Official Notices that it well known in the art to provide metadata comprises histogram associated with the audio control information in order to further enhance the playback features available. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Saunders to have the metadata of Saunders, comprise histogram associated

with the audio control information in order to further enhance the playback features available

Response to Arguments

28. Applicant's arguments filed 5/24/2006 have been fully considered but they are not persuasive.

29. With respect to Applicant's argument on page 8, stating that "Nakano teach deriving a set of metadata describing a statistical distribution of levels encountered in the audio track and deriving, from the metadata, a time-varying gain that varies with time within the audio track to modify the statistical distribution of levels", has been noted. However, the examiner respectfully disagrees. Nakano discloses an average calculating circuit 13d samples the input sound signals and calculates an average of amplitudes of the sound signals in **each prescribed period** including a certain number of sampling times, wherein for each prescribed period it is implicit that the average of amplitude can varying, therefore providing a varying average of amplitude as a function of time. Furthermore, Nakano discloses **producing a frequency distribution of amplitudes of sound signals in each prescribed period** and sampling only sounding portions of the sound signals **from the frequency distribution to calculate an average** thereof, which reads on "deriving, from the audio track, a set of metadata describing a statistical distribution of levels encountered in the audio track; deriving, from the metadata, a time-varying gain that varies with time within the audio track to modify the statistical distribution of levels". See column 10, lines 41-59.

30. With respect to Applicant's argument on page 9, stating that "Nakano is only concerned with estimating or specifying an average level for an audio segment and not a range of levels", has been noted. However, the examiner respectfully disagrees. See argument above.

31. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey P. Chau whose telephone number is (571)272-7514. The examiner can normally be reached on Monday - Friday 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on (571)272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 18, 2006
CPC

SINH TRAN
SUPERVISORY PATENT EXAMINER